5.1 Adding & Subtracting Polynomials

**Monomials**

Monomial – the product of a constant and a variable raised to a whole number power

***a xk a*** is a constant that is a real number

***x*** is a variable

***k*** is a whole number

***k*** is also the degree of the monomial

Name the degree of each monomial

5y3 Degree = 3 Cubic

- 13 x2 Degree = 2 Quadratic

8m Degree = 1 Linear

9 Degree = 0 (Since there is no variable, we rewrite 9 as 9x0)

0 No degree

**Polynomials**

Polynomial – a monomial or the sum or difference of monomials;

they can be also named by the number of terms

Monomial - one term 8xy

Binomial - two terms -12a + 16b

Trinomial - three terms 7x2 – 4x + 8

Anything over 3 terms we just call a polynomial

Standard Form – when the polynomial is written with the terms in

descending order according to the degree

5x3 – 7x2 + 3x – 4 8a4b2 – 3a3b + 5a2 -6

* Always write polynomials in standard form

Expressions that are not polynomials occur when:

the power is not a whole number (a negative number or a fraction)

x ½ 4m -5

the variable is the in denominator on a fraction

5/x3

**Simplifying Polynomials**

To simplify a polynomial you combine like terms.

Addition problems can be solved using horizontal addition or vertical addition.

Subtraction problems can also be solved using horizontal subtraction or vertical subtraction. HOWEVER, you must be very careful with the signs.

I prefer to change all subtraction problems to addition problems by using the rule that ***a – b = a + (-b)***

**Evaluating Polynomials**

To evaluate a polynomial just substitute the given value for the variable. You must follow the order of operations.